

# Xenex Healthcare Services

Prepared by Science Team

May 14, 2014

MERS Synopsis

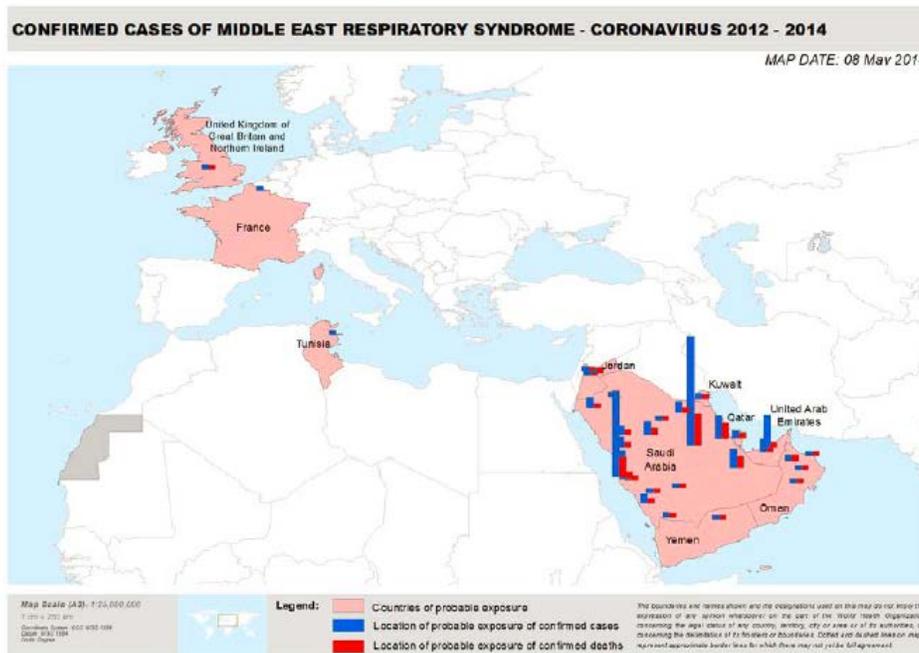


Middle East Respiratory Syndrome (MERS) is viral respiratory illness first reported in Saudi Arabia in 2012. It is caused by a coronavirus called MERS-CoV. Most people who have been confirmed to have MERS-CoV infection developed severe acute respiratory illness.

## Source/ Geographical Spread of Infection

As of 27 March 2014, there has been a strong upsurge of infection encompassing 330 laboratory confirmed cases.

All cases reported outside of the Middle East recently travelled from countries inside the Middle East. On May 2, 2014 the first US case of MERS was confirmed in a traveler from Saudi to the U.S. This patient is fully recovered and out of the hospital. On May 11 (Sunday), a second U.S. MERS case was confirmed for a separate traveler from Saudi. The patient is currently hospitalized at Dr. P Phillips Hospital (Orlando Health System) and doing well.



**Figure 1. Location of the laboratory-confirmed cases of MERS-CoV infection by country of presumed exposure, March 2012-8 May 2014**

## Terms

Coronavirus: a family of single-stranded RNA viruses that usually involve mild illness (common cold). We have all been affected by this virus at some point in our lives. However, although in rare form, SARS (severe acute respiratory syndrome) and as of MERS (2012) are uncommon forms of this virus.

RNA: A molecule related to DNA. We are able to damage RNA in the same ways that we damage DNA.

## Symptoms and Complications

Fever, muscle aches, cough, sore throat and shortness of breath.

About 30% of these people died. 536 lab confirmed, and 145 deaths.

Pneumonia or lower respiratory tract illness- usually with compromised immune systems (elderly)

It is not always possible to identify patients with MERS because some have mild or unusual symptoms. This is why the WHO recommends standard precautions with all patients. In a study by Cauchemez (2014), researchers concluded that at least 62% of clinically apparent cases have been missed. Like the H1N1, the U.S. general population is at very low risk to infection, lower than current laboratory confirmation might suggest. However, with decreased immune function in hospitalized patients, precautions to prevent the spread of infection should still be of great importance.

## Transmission

Coronavirus are typically spread through respiratory secretions or close personal contact, but shedding has been noted in feces and urine.

It is estimated that coronavirus can survive on dry, inanimate surfaces for 3 hours-4 days. Moist surfaces and ideal temperature (20 C) may result in prolonged survival of the virus. In a study by van Doremalen (2013), the virus was recovered after 48 hours and no decrease in stability of the virus was observed when aerosolized, suggesting the strong potential of transmission via contact or transmission from the environment for prolonged periods of time.

There is no evidence of sustained human-to-human transmission in the community setting. Transmission is localized to hospital settings, and those providing direct care to ill persons. Because the disease does not spread easily from person to person, it is not anticipated that MERS will develop into an epidemic.

## Disinfection

### *Manual Disinfection*

EPA approved hospital disinfectants are effective at killing Coronavirus, and should be used for routine disinfection of equipment and surfaces

### *Xenex Disinfection*

Because coronavirus may be shed in urine and feces, daily disinfection of bathrooms and bedside commodes may be a critical prevention technique.

Because of the airborne nature of the disease, it is likely to settle on surfaces that are farther removed from the patient than with other contact-based diseases. Because of this, we have added an additional disinfection cycle to rooms that have housed a MERS patient. Example room diagrams are shown below.

## **Our Role: Provide aid to infection control and EVS to prevent disease spread.**

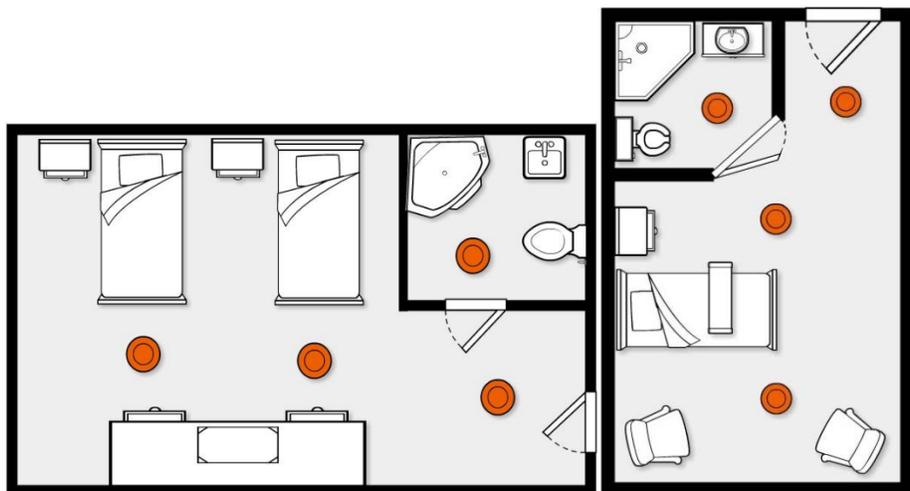
The World Health Organization has given its suggestion. "Until more is understood about the exposures to non-human sources in the community, or human or **environmental exposures in health care settings and implementation of preventative measures**, cases will continue to spread" Furthermore, a large number of the recently reported cases reflect infection acquired through transmission in healthcare settings. Spurring the spread of MERS requires investigation from all levels of the public health sector. At Xenex, we believe we can apply additional safety to the hospital, and even community environment until the source, spread and risk of this disease is better identified. The environment has been identified as a risk factor for infection in healthcare

settings, and we have proven superior in both disinfection and incorporation into existing infection control strategies and practices. This is an excellent opportunity to help out when called, and further spread our technology to others.

### Room Diagrams

Double Patient Room

Single Patient Room



ICU

Emergency Room

